Case study title: **Sustainable Communities: Understanding Regional Hazards**

Contact(s):

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Case study emphasis: The case study examines the economic consequences of flooding in urban and rural communities including Mandeville, LA and Franklin, LA.

Summary: The Federal Emergency Management Agency (FEMA) is releasing two natural hazard models as part of their Hazards United States (HAZUS). Two communities were identified as pilot sites to assess the application of the HAZUS riverine flood model. The two communities reflect an urban setting on Lake Ponchatrain and a rural agricultural community in Southwest coastal Louisiana. HAZUS allows the user to determine the area impacted by inland flooding and coastal hazards. In addition, HAZUS provides a utility to calculate the economic impact of a hazard on the built environment including damage to bridges, residences, business enterprises, manufacturing, and agriculture. HAZUS thus provides a means of calculating the consequences of natural hazards on a local or regional level. This approach differs from other hazard assessment methodologies that are limited to determining the area of a hazard event and showing the potential impact of the event. Vulnerability assessment approaches examine what could happen in a specific hazard event rather than the more complex "deterministic" approaches that explain the consequences of the hazard. Deterministic modeling requires far more local data such as first floor elevations that then can be compared to the depth of the water. The HAZUS application provides two tools that assist the user in creating local data sets that allow for the more complex hazard assessment. The presentation will outline the scope and purpose of the HAZUS multi-hazard application and explain what local data may be included for determining the impact of a hazard event on a local community or region.

Date that model application was completed: November 27, 2002

Case study geographical location: City and Parish / County

Vulnerability assessment indicators: Economic, social and environmental indicators

Methodology data requirements: The HAZUS application requires coastal and riverine flooding data (USGS DEM, survey cross sections or base elevation measurements from FEMA Flood Insurance Rate Maps, and previous flood boundaries such as FEMA Q3 maps) and local building inventories (points, parcels, blocks, block group or tract areas).

Direct participants in the application of the model of the vulnerability assessment:

Local, County, and State/Provincial Governments

Multilateral Development Agency	Mutlilateral Finance Agency
Bilateral Development Agency	Non Governmental Organization
Private Volunteer Organization	Research/Training Institute
Civic Association	Private Consulting Firm

Economic and social sector participants directly involved: The HAZUS application allows the user to determine the economic consequences of a specific riverine or coastal hazard event including the damage to public and private buildings (residential, commercial, manufacturing, education, government, and agriculture). The utility is linked to US Census 2000 SF3 data for detailed assessment of the impact of a hazard event.

Methodology objective: (1) To determine the nature and extent of the geographic area impacted by a riverine and coastal hazard event.; (2) To describe the economic impact of a riverine or coastal hazard event; (3) to clarify the social and environmental impact of coastal hazard events.

Methodology output: (1) GIS based areas impacted by hazard events; (2) GIS based economic, social and environmental outcomes of hazard events.

Results of methodology application at case study site: The results of the case study applications have been used to illustrate the multi-hazard risk assessment methodology for large urban areas, and coastal communities in urban and rural settings. Local user groups have been established in collaboration with the state emergency management association, state flood plane management association, state non-profit organizations, regional local government emergency management organizations, and private business groups. The case studies form the basis for explaining the purpose and limitations of the risk assessment methodology and the types of data needs for both modeling and damage assessment.

Lessons learned:

1. Local, regional, and national government agencies continue to be interested in new approaches and technologies for understanding the nature and impact of hazards.
2. Users of the hazard technologies stress the need to methodology documentation, open non-copyrighted utilities and models, suggestions and assistance in data acquiring, and technical support.
3. Case studies and illustrations of the methodology are critical in successful implementation of innovations to hazard modeling and analysis.
4. National initiatives demonstrate the value of consistent approaches to understanding hazards and their impact. The data structure provided in HAZUS allows users at many levels of government a common approach to describing hazards and their impacts.